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The Political Economy of Inflation Measurement and Targeting

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Abstract

This paper examines inflation measurement and inflation targeting from a political economy perspective. Building on Gottfried Haberler's neglected contributions to index number theory, it argues that inflation is not an objectively measurable economic magnitude but an institutional approximation requiring unavoidable methodological judgment. After reconstructing the theoretical limitations of inflation measurement, the paper examines their practical implications for the Harmonized Index of Consumer Prices and highlights systematic omissions relating to public goods, wealth accumulation, and asset prices. It then analyzes the institutional consequences of using official inflation measures as operational targets of monetary policy. The paper argues that inflation targeting does not eliminate discretionary policymaking but partly relocates discretion to the process by which inflation is defined and measured.

Keywords: political economy; inflation measurement; inflation targeting; index numbers
JEL-Codes: E31; E52; D72

1 Introduction

Inflation measurement plays a central role in modern economic policy. Official inflation statistics guide monetary policy, serve as the basis for estimates of real wages and output, and determine numerous contractual and fiscal adjustments. Consequently, systematic biases or methodological inaccuracies may have far-reaching economic and political consequences. This paper argues that modern inflation measurement falls short of the standards required for the institutional role it has come to play.

Almost one hundred years ago, Gottfried Haberler published his seminal study of index number theory, making contributions that have largely been forgotten (Israel, 2024). Haberler (1927, p. III) described the debate over inflation measurement as a navigation between “the Charybdis of blind belief in numbers and the Scylla of negative skepticism.” His objective was neither to reject inflation measurement nor to accept official statistics uncritically, but to clarify their theoretical limits. This paper revisits Haberler’s analysis in light of contemporary monetary policy.

Haberler’s analysis leads to three central conclusions. First, there exists no objectively defined price level independent of individual valuations. Second, changes in purchasing power differ across individuals—and even for the same individual under different income streams. Third, even abstracting from these difficulties, index number theory cannot identify a unique measure of inflation but only upper and lower bounds represented by the Paasche and Laspeyres indices.

Building on Haberler’s framework, the paper proceeds from theory to practice. Section 2 reconstructs the theoretical limitations of inflation measurement on the basis of subjective value theory and index number theory. Section 3 examines how these limitations manifest themselves in the construction of the Harmonized Index of Consumer Prices. Section 4 argues that once official inflation measures become policy targets, the unavoidable methodological discretion involved in their construction acquires political significance, raising new questions about inflation targeting and modern fiscal frameworks such as Modern Monetary Theory.

2 Theoretical Problems of Inflation Measurement

It is well known, but not very often appreciated, that inflation measurement deals with fundamentally subjective aspects of human life. The standard of living of an individual or the money costs of a given degree of satisfaction derived from a bundle of goods and services cannot be observed and measured directly. And yet one of the purposes of inflation measurement is precisely to provide empirical insights into the evolution of living standards over time and their differences between places.

The key question of inflation measurement is how the money costs of a given standard of living, or the money costs of a given degree of want satisfaction, have changed over time. This is the underlying question in the composition of any cost-of-living index and any consumer price index. Both the American Consumer Price Index (CPI) as well as the European Harmonized Index of Consumer Prices (HICP) are based on the idea of a cost-of-living index, but it is widely acknowledged that they do not provide a complete assessment of living costs. They comprise only a part of it, namely consumer goods and services purchased by households. The website of the *Bureau of Labor Statistics* explains this well:

Both the CPI and a cost-of-living index would reflect changes in the prices of goods and services, such as food and clothing that are directly purchased in the marketplace; but a complete cost-of-living index would go beyond this to also take into account changes in other governmental or environmental factors that affect consumers' well-being. It is very difficult to determine the proper treatment of public goods, such as safety and education, and other broad concerns, such as health, water quality, and crime that would constitute a complete cost-of-living framework.¹

The 2024 edition of the methodological manual for the HICP published by *Eurostat* makes a more explicit distinction between the HICP and a cost-of-living index:

¹See <https://www.bls.gov/cpi/questions-and-answers.htm>.

The HICP is a cost of goods (and services) index (or COGI), i.e. it measures the changing costs of a fixed basket of products at different sets of prices over time. The HICP is not designed to be a cost of living index (or COLI) [...] Given its primary use as a macroeconomic indicator for monetary policy, a COLI approach was never seen as an option for the HICP. (Eurostat, 2024, pp. 17-18)

However, the basic theoretical problem that both the CPI and the HICP face is analogous to that of a cost-of-living index, although they have a narrower focus. They try to assess by how much the money costs of a given degree of satisfaction derived from a bundle of goods and services change over time. Moreover, the HICP, contrary to the passage of the manual quoted above, changes its composition over time. It does not look at a fixed basket of goods and services, and various methods of quality adjustments are implemented regularly.

Therefore one can put the problem as follows: An index for inflation measurement tries to assess by how much a given amount of money has to change (between places or points in time) so as to have the same purchasing power with respect to the subjective want satisfaction derived from the goods and services bought. Or as Sidney Afriat (2014, p. 5) puts it succinctly at the beginning of his important book *The Index Number Problem*:

The price index, a pervasive long established institution for economics, is a number issued by the Statistical Office that should tell anyone the ratio of costs of maintaining a given standard of living in two periods where prices differ.

Formally, the problem can be reduced to the ratio of a utility-cost function at different prices. We define a utility function $\phi : \Omega^n \rightarrow \Omega$, with Ω denoting non-negative numbers and Ω^n denoting column vectors of size n of non-negative numbers. With a consumption bundle of $x \in \Omega^n$, the utility of consuming that bundle is given by $\phi(x)$. At a given m -dimensional row vector of prices $p \in \Omega_n$, the cost of obtaining the utility of consumption bundle x can be defined by a utility-cost function:

$$\rho(p, x) = \min\{py : \phi(y) \geq \phi(x)\}.$$

Consumption bundle x represents a certain living standard or certain degree of want satisfaction or utility. With prices changing between two references (in time or place) from p_1 to p_2 , the change in the money cost of reaching that living standard, want satisfaction, or utility, is given by the following ratio:

$$\frac{\rho(p_2, x)}{\rho(p_1, x)}$$

This general definition of a price index given by Afriat (2014) encapsulates the central problem concisely. It is an ideal starting point to analyze the fundamental limitations of computing such a price index in theory and practice.

2.1 From Value Theory to the Assumptions Required

The standard of living or utility derived from consumption can be analyzed only on the basis of a theory of value. Ever since Menger (1871) introduced a fully developed subjective theory of value, there is no avoiding the fact that economic theory can be built on and fully embrace the fundamental limitation that there is no common denominator of value. Value is subjective. Utilities are incommensurable. They depend on the individuals' preferences and the circumstances in which they find themselves. They cannot be compared interpersonally, and they cannot be measured and compared for one and the same individual over time (Herbener, 2008; Fegley and Israel, 2024).

Any given sum of money can procure very different subjective want satisfactions. So even money by means of which we obtain a common denominator for market exchange values, i.e. prices, as well as a measure of economic wealth and income, does not provide a measurement unit for subjective value. This is the fundamental limitation of welfare economics as well as of index number theory for income and inflation measurement.

Haberler (1927, pp. 79-83) who was steeped in the tradition of Austrian subjectivism, introduced three different notions of income: nominal income, income in kind and real income, or as Fetter (1915) famously put it “psychic income.” Nominal income is money income. Income in kind corresponds to the goods and services bought or the consumption bundle chosen, and real or psychic income is what really matters. It refers to the want satisfaction or utility derived from the consumption bundle. One can thus put the central question of index number theory for inflation measurement in terms of these three notions: How much more or less *nominal income* ($p_2y \geq / \leq p_1x$) does one need to buy an *income in kind* (y) that engenders the same *real* or *psychic income* as the income in kind that serves as the reference ($\phi(y) = \phi(x)$)?

If one starts from the premise that psychic income, welfare, utility or values are subjective, there is only one window into this hidden world of subjectivity. It is provided by the observable choices of acting human beings in the real world. As Haberler (1927, p. 82) wrote:

Who decides which income in kind encompasses the greater psychic income, i.e. which provides the greater satisfaction? Is it science? No! The economic subjects prefer the one to the other, the economic subjects decide which income in kind they prefer, and that which the subjects prefer is called by theory the greater real income; of the income in kind which the subjects have chosen, theory says that it is the one which provides the greater psychic income. [own translation]

Assume that an individual chooses bundle x over bundle y which would have been available at the same money cost or less. From Haberler’s statement, it follows that x must have been preferred over y in that situation, or put differently $\phi(x) \geq \phi(y)$. This is the very basis of what is commonly called revealed preference theory, but it also provides the basis for index number theory (Israel, 2024).

Logical deductions drawn from observed consumer choices are constrained by the auxiliary assumptions we are willing to make. Certain conclusions require much stronger as-

sumptions than others. It is generally preferred to have as little and as realistic assumptions as possible. One of the most parsimonious approaches in that respect is Murray Rothbard's *demonstrated preference* analysis (Rothbard, 1956), where nothing can be deduced from voluntary choices other than that the option chosen in a concrete case was preferred over the available alternatives under the specific circumstances of the situation. Any voluntary choice is thus welfare enhancing in the *ex ante* sense of the word. And no forced choice can be demonstrated to be welfare enhancing. From this Rothbard derives one of the most radical defenses of a free-market economy that can be found in the literature. He holds that no government intervention, which by definition relies on force, can be justified on welfare economic grounds (Fegley and Israel, 2024). Genuine preferences are not demonstrated or revealed if choices of agents are coerced.²

There is one key assumption that opens the route to all kinds of theoretical conclusions. If one assumes that utility can be captured by a constant utility function over time or between places, strong implications follow both for welfare economics³ as well as index number theory. The assumption of a constant utility function in inflation measurement encompasses many different aspects if translated into a real-world scenario. Haberler (1927, pp. 77-99) saw this very clearly and took great care spelling out the often tacit underlying assumptions involved. They can be summarized as follows:

1. The level to which needs are already satisfied (prior to consumption) is held constant.
2. Preferences and needs themselves are held constant.
3. A whole range of side conditions, summed up as climatic, social, cultural, political

²There is of course still a preference revealed in a limited sense, namely, that the person who is coerced to pay for a product prefers to obey rather than resist the coercion.

³This includes large parts of behavioral economics. For example, the extensive literature on paternalism relies in one form or another on assuming preferences to be constant over time. If one shows that choices made at one point in time are inconsistent with previous choices and concludes that agents make decisions against their self interest, one implicitly assumes there to be a correct set of underlying preferences that do not change, otherwise the policy conclusions even of the most tentative type of paternalism, namely libertarian paternalism (Thaler and Sunstein, 2021), do not follow. For a detailed critique of libertarian paternalism see Rizzo and Whitman (2020).

conditions, are held constant.

Apart from these assumptions, Haberler identified three supplementary assumptions that need to be made to develop his theory of index numbers:

4. The entire nominal income is consumed.
5. All goods are available in both periods (regions).
6. They can be bought freely on markets.

Some of these assumptions are self-explanatory. Others deserve closer attention and explanation. Assumption 4, for example, is often not fully appreciated. The assumption holds that all of the available income is consumed and no part of it is saved, that is, no wealth is built up over time. Haberler makes this assumption primarily to avoid the complications of clearly separating income from wealth, which in some practical situations can be very difficult. But it is also clear that changes in the wealth endowment of economic actors is not neutral to their standard of living. All other things equal, a situation with more wealth is preferred over a situation with less wealth.⁴ Changing wealth positions might trigger changes in consumption decisions, all other things held constant. The very same consumption bundle at exactly the same money costs at two different reference points with different wealth positions may procure different standards of living. Assuming that all the available income is consumed and no changes in wealth positions occur avoids this difficulty.

Assumptions 5 and 6 are also very important. The possible goods and services that enter into the consumption bundle must be available at both reference points, that is, changes in quality, the appearance of new goods and services or the disappearance of old ones cause problems for the empirical assessment of real income. Moreover, all goods and services must be traded freely on markets, where buying and selling decisions are genuine expressions of

⁴This is an apodictic truth, if we define wealth broadly as the ability to satisfy our needs. If we define wealth more narrowly as the monetary value of all assets owned, there might of course be exceptions to the rule, albeit only very rarely.

preferences and not of political commands. Haberler thus emphasizes the institutional prerequisite of inflation measurement: in a highly regulated or even centrally planned economy, our capability of estimating price inflation diminishes. Only in a free-market setting can changes in consumption bundles possibly shed light on underlying preferences. Only in such a setting do we have a possibility to partly cope with the problem of substitution effects, although it seems that we will never be able to fully solve it.

2.2 Substitution Effects

Substitutions of goods and services may occur because of changes in relative prices, side conditions, needs and preferences, or the degree to which needs and preferences are already satisfied prior to consumption. Through assumptions 1 to 3, we rule out the latter causes for substitutions. Only relative price changes remain. It seems intuitively plausible that overall price inflation would correspond to the rate of change of money prices if all prices change in exactly the same way. But if they do not, the fundamental question arises of how to weight the different price changes in order to obtain the correct average price change.

It is commonly accepted that the weights should be related to the actual quantities of goods and services bought, but since these quantities change due to substitution effects, there is no obvious weighting scheme that could be used objectively. Given the price vectors of two reference points (in time or place) p_1 and p_2 ($\in \Omega_n$), one could use the corresponding quantities consumed of reference point 1 or 2, that is q_1 or q_2 ($\in \Omega^n$), or anything in between.

The two standard indices derived from these considerations are the Laspeyres index and the Paasche index. Laspeyres takes the consumption bundle of reference point 1 as benchmark, while the Paasche index takes the consumption bundle of reference point 2 as benchmark. Given our notation the two indices can be written as:

$$\mathcal{L}_{1,2} = \frac{p_2 q_1}{p_1 q_1} \quad \text{and} \quad \mathcal{P}_{1,2} = \frac{p_2 q_2}{p_1 q_2}.$$

The Laspeyres index relates the expenditure of reference point 1 (p_1q_1) to the hypothetical expenditure required to buy the same bundle at the prices of reference point 2 (p_2q_1). It essentially tells us how much more (or less) money would be required in reference point 2 to buy the same bundle as in reference point 1. In contrast, the Paasche index asks how much more (or less) money would be required in reference point 1 to buy the bundle actually chosen in reference point 2. It relates the hypothetical expenditure required to buy the bundle of reference point 2 at prices of reference point 1 (p_1q_2) to the actual expenditure in reference point 2 (p_2q_2).

The two basic indices generally yield different results. The formal literature attempted to resolve this ambiguity through a number of axiomatic tests, involving among other things the reversal of reference points. We can easily see how the Laspeyres and Paasche indices between two reference points are related. In fact, the inverse of one index corresponds to the other index when the reference points are reversed:

$$\mathcal{L}_{1,2}^{-1} = \frac{p_1q_1}{p_2q_1} = \mathcal{P}_{2,1} \quad \text{and} \quad \mathcal{P}_{1,2}^{-1} = \frac{p_1q_2}{p_2q_2} = \mathcal{L}_{2,1}.$$

If reference points are interpreted as points in time, we can say that both the Laspeyres and the Paasche index do not fulfill the so called *time reversal rule*, that is both $\mathcal{L}_{1,2} * \mathcal{L}_{2,1}$ and $\mathcal{P}_{1,2} * \mathcal{P}_{2,1}$ are generally not equal to 1. Instead, they complement each other. The time-reversed Paasche index is the complement to the Laspeyres index and the time-reversed Laspeyres index is the complement to the Paasche index to fulfill the *time reversal rule*:

$$\mathcal{L}_{1,2} * \mathcal{P}_{2,1} = 1 \quad \text{and} \quad \mathcal{P}_{1,2} * \mathcal{L}_{2,1} = 1.$$

In a similar way, both indices fail to fulfill the *factor reversal rule*. Both index formulae can be applied not only to prices but also to quantities. We can thus define a Laspeyres quantity index that takes prices of reference point 1 as benchmark and a Paasche quantity index that takes prices of reference point 2 as benchmark:

$$\mathcal{L}_{Q|1,2} = \frac{p_1 q_2}{p_1 q_1} \quad \text{and} \quad \mathcal{P}_{Q|1,2} = \frac{p_2 q_2}{p_2 q_1}.$$

The *factor reversal rule*⁵ is a purely formal requirement that holds that an index formula should be applicable equally to prices and quantities and that the products of the respective price and quantity indices should equal the overall expenditure index that comprises both quantity and price changes: $(p_2 q_2)/(p_1 q_1)$. However, for both indices we generally obtain:

$$\mathcal{L}_{1,2} * \mathcal{L}_{Q|1,2} = \frac{p_2 q_1}{p_1 q_1} * \frac{p_1 q_2}{p_1 q_1} \neq \frac{p_2 q_2}{p_1 q_1} \quad \text{and} \quad \mathcal{P}_{1,2} * \mathcal{P}_{Q|1,2} = \frac{p_2 q_2}{p_1 q_2} * \frac{p_2 q_2}{p_2 q_1} \neq \frac{p_2 q_2}{p_1 q_1}.$$

These two formal shortcomings of the Laspeyres and Paasche indices are due to substitution effects, which imply that Laspeyres and Paasche do not generally lead to the same results. They have let Fisher (1922) to propose his “ideal formula” that is given by the geometric average of the two base indices:

$$\mathcal{F}_{1,2} = \sqrt{\mathcal{L}_{1,2} \mathcal{P}_{1,2}}.$$

By taking the geometric average one obtains an index that satisfies both of the above rules. It satisfies the *time reversal rule*, because:

$$\mathcal{F}_{1,2} * \mathcal{F}_{2,1} = \sqrt{\mathcal{L}_{1,2} \mathcal{P}_{1,2}} * \sqrt{\mathcal{L}_{2,1} \mathcal{P}_{2,1}} = \sqrt{\mathcal{L}_{1,2} \mathcal{P}_{1,2}} * \sqrt{\mathcal{P}_{1,2}^{-1} \mathcal{L}_{1,2}^{-1}} = \frac{\sqrt{\mathcal{L}_{1,2} \mathcal{P}_{1,2}}}{\sqrt{\mathcal{L}_{1,2} \mathcal{P}_{1,2}}} = 1.$$

And it satisfies the *factor reversal rule*, because:

$$\mathcal{F}_{1,2} * \mathcal{F}_{Q|1,2} = \sqrt{\mathcal{L}_{1,2} \mathcal{P}_{1,2}} * \sqrt{\mathcal{L}_{Q|1,2} \mathcal{P}_{Q|1,2}} = \sqrt{\frac{p_2 q_1}{p_1 q_1} \frac{p_2 q_2}{p_1 q_2}} * \sqrt{\frac{p_1 q_2}{p_1 q_1} \frac{p_2 q_2}{p_2 q_1}} = \frac{p_2 q_2}{p_1 q_1}.$$

⁵For a good overview of the so-called test approach to index numbers see Balk (2008). Specifically for the factor reversal rule see pp. 84ff.

These rules are purely formalistic. They ensure a certain mathematical elegance and it is easy to see why Fisher insisted on their importance. He was interested in cleanly separating quantity and price effects as this would come in handy when applied to his famous equation of exchange: $PQ = MV$. But he provided absolutely no reason based on economic theory for why the geometric average of Laspeyres and Paasche ought to be preferred over any other average or the base indices themselves. They all seem equally plausible or implausible at first glance, because there is no obvious way of settling the question of which consumption bundle should serve as the benchmark, q_1 or q_2 , or any bundle in between. If q_1 and q_2 were to coincide, the problem would disappear. However, consumption patterns regularly change. Substitution effects make it impossible to obtain a unique measure of price inflation even under the six assumptions highlighted by Haberler.

2.3 Laspeyres and Paasche as upper and lower bounds

It was Haberler (1927) who first formulated an economic argument for why a value in between the Laspeyres and Paasche indices seems plausible as a measure of price inflation under his set of assumptions (Israel, 2024). The argument is straightforward and relies on the insight that consumer choice in a free-market setting is welfare enhancing at least in the *ex ante* sense of the word.

If a consumer freely chooses the bundle q_1 at prices p_1 , he demonstrates a preference for exactly that bundle over all other bundle that could have been bought instead. Now, Haberler assumes that all the available income is spent, that is, the available nominal income in reference point 1 I_1 equals the expenditure p_1q_1 . What is the required nominal income in reference point 2 so that exactly the same bundle can be bought at prices p_2 ? It has to be $I_2^* = p_2q_1$. Hence, the Laspeyres index provides the required change in nominal income so that the same bundle, not more and not less, can be bought in reference point 2. A change in nominal income that corresponds to the Laspeyres index makes sure that the consumer is as well off in reference point 2 as in reference point 1:

$$I_2^* = I_1 \mathcal{L}_{1,2}.$$

Now, because price changes are not homogeneous, relative prices between various goods and services change. It might therefore be possible for the consumer to pick a bundle of goods and services in reference point 2 with an income of I_2^* that differs from q_1 and that is inherently preferred. Indeed, if the consumer endowed with an income of I_2^* picks a bundle q_2 at prices p_2 , he demonstrates a preference for q_2 over q_1 . In that case, the standard of living, want satisfaction or utility of the consumer has increased as compared to reference point 1 ($\phi(q_2) \geq \phi(q_1)$). Hence, the Laspeyres index represents the upper bound for the required change in nominal income to preserve the consumer's psychic income under Haberler's assumptions.

By the same token, the Laspeyres index with reversed references, that is, $\mathcal{L}_{2,1}$, which corresponds to the inverted Paasche index, that is, $\mathcal{P}_{1,2}^{-1}$, provides the required change of income from reference point 2 ($I_2 = p_2 q_2$) to reference point 1 (I_1^*), such that the consumer is at least as well off in reference point 1 as in reference point 2:

$$I_1^* = I_2 \mathcal{L}_{2,1} = I_2 \mathcal{P}_{1,2}^{-1}.$$

We can rearrange the above equation to:

$$I_1^* \mathcal{P}_{1,2} = I_2.$$

We know that the consumer receiving an income of I_1^* at prices p_1 is at least as well off as when receiving an income of I_2 at prices p_2 . If indeed the consumer is better off with income I_1^* at prices p_1 , it follows that a change of income from reference point 1 to reference point 2 that corresponds to the Paasche index is not sufficient to preserve the consumer's psychic income. The consumer would have a lower psychic income at reference point 2 as compared to reference point 1. Hence, the Paasche index provides the lower bound for the

required change in nominal income from point 1 to point 2 in order to preserve the same psychic income.

Haberler (1927, Part B, Ch. II, Section 4) was the first to make this important argument. Under the assumptions listed above the true rate of price inflation is given by a value between the Paasche index as the lower bound and the Laspeyres index as the upper bound. One can therefore say that if the Paasche index indicates a positive rate of price inflation, i.e. $\mathcal{P}_{1,2} > 1$, we can say that prices on average have indeed increased. In that situation a higher nominal income is required to preserve the same psychic income. Likewise, if the Laspeyres index indicates price deflation, i.e. $\mathcal{L}_{1,2} < 1$, we can say that prices on average have indeed decreased. A smaller nominal income is sufficient to preserve the same psychic income. We cannot, however,—even under the idealized assumptions made—say exactly by how much the nominal income has to change. If income at reference point 1 is I_1 , we can only say that income at reference point 2 has to be within the following interval:

$$I_2 \in [I_1 \mathcal{P}_{1,2}, I_1 \mathcal{L}_{1,2}].$$

The above analysis seems to imply that $\mathcal{L}_{1,2} > \mathcal{P}_{1,2}$ has to hold at all times. It is obvious that in practice this is not always the case. One reason for this could be that the assumptions are not actually met in reality. It is therefore possible to observe situations where $\mathcal{L}_{1,2} < \mathcal{P}_{1,2}$. However, even if all the assumptions were met, it is possible to have a situation where $\mathcal{L}_{1,2} < \mathcal{P}_{1,2}$. This is because of income effects.

We can illustrate this point by a simple example. Assume that a consumer has the choice between two goods, x and y , that are substitutable for one another, but one is of higher quality than the other. The consumer only needs one of the two goods. Let us assume that x is of higher quality than y . The consumer therefore prefers, say $x = 4$ over $y = 12$, but if given the choice between $x = 2$ and $y = 4$ the larger quantity of $y = 4$ would be preferred.⁶ Let us assume that the consumer can spend an amount of 12 units of money

⁶This could be the situation of a painter who needs a certain amount of the color red to finish a painting.

on the two goods in two hypothetical reference points, i.e. $I_1 = I_2 = 12$, with different prices:

$$p_1 = (p_x = 3, p_y = 1) \quad \text{and} \quad p_2 = (p_x = 6, p_y = 3).$$

Given the above preferences of the consumer, the bundle $q'_1 = (x = 4, y = 0)$ would be bought over the bundle $(x = 0, y = 12)$ at prices p_1 , and the bundle $q'_2 = (x = 0, y = 4)$ would be bought over the bundle $(x = 2, y = 0)$ at prices p_2 . Hence, although nothing has changed in terms of the underlying preferences or side conditions under which the choice is made, we obtain the following result:

$$\mathcal{L}_{1,2} = \frac{p_2 q_1}{p_1 q_1} = \frac{(6, 3) * (4, 0)'}{(3, 1) * (4, 0)'} = \frac{24}{12} = 2 \quad \text{and} \quad \mathcal{P}_{1,2} = \frac{p_2 q_2}{p_1 q_2} = \frac{(6, 3) * (0, 4)'}{(3, 1) * (0, 4)'} = \frac{12}{4} = 3.$$

Hence, $\mathcal{L}_{1,2} < \mathcal{P}_{1,2}$ can be the case even if all of the stated assumptions are met. This seemingly contradictory result echos the second limitation of inflation measurement that we have mentioned in the introduction to this paper: Even for one and the same person the evolution of the purchasing power of money may differ with different income streams under otherwise identical conditions. In other words, there are income effects in consumption decisions, and if the person in our example would have had a nominal income of $I_2 = 24$ at reference point 2, the bundle $q'_2 = (4, 0)$ would be preferred (assuming that for the person in that situation nothing else really matters),⁷ and hence we would obtain instead $\mathcal{L}_{1,2} = \mathcal{P}_{1,2} = 2$. We can thus say that changes in income streams, or income effects, may trigger changes in the estimated rate of price inflation. But income effects are themselves

There is high quality red x and lower quality red y . The painter would always choose higher over the lower quality, but only if he could afford the amount of color needed to finish the painting. If he cannot afford the necessary amount of high quality red, a larger amount of low quality red is preferred, if it is sufficient to finish the painting.

⁷Note, that if the person prefers $x = 4$ over $y = 12$, which we assumed, then *a fortiori* $x = 4$ is preferred over $y = 8$. And if nothing else matters in the situation, the money would not be spent on anything else.

inherent in price changes.⁸

These results show that even in theory, under very favorable assumptions, our ability to determine a correct rate of price inflation is limited. We can at best determine the range within which the correct value lies, and income effects may even undermine the logical consistency of that range.

2.4 Quantities and Prices as Interdependent Variables

The standard approach to estimating price inflation suffers from another fundamental shortcoming on the theoretical level. The Paasche and Laspeyres indices and any compromise in between are based on price changes of goods and services that are in some form or another weighted by the corresponding quantities that consumers buy. More precisely, the Paasche and Laspeyres indices are averages of price ratios between two reference points that are weighted by actual or hypothetical expenditure shares. This can be shown by transitioning from vector notation to sum notation. We obtain:

$$\mathcal{L}_{1,2} = \frac{p_2 q_1}{p_1 q_1} = \frac{\sum_{i=1}^n p_{2i} q_{1i}}{\sum_{i=1}^n p_{1i} q_{1i}} = \sum_{i=1}^n \frac{p_{1i} q_{1i}}{\sum_{j=1}^n p_{1j} q_{1j}} \left(\frac{p_{2i}}{p_{1i}} \right) \equiv \sum_{i=1}^n w_i \left(\frac{p_{2i}}{p_{1i}} \right),$$

and

$$\mathcal{P}_{1,2} = \frac{p_2 q_2}{p_1 q_2} = \frac{\sum_{i=1}^n p_{2i} q_{2i}}{\sum_{i=1}^n p_{1i} q_{2i}} = \sum_{i=1}^n \frac{p_{1i} q_{2i}}{\sum_{j=1}^n p_{1j} q_{2j}} \left(\frac{p_{2i}}{p_{1i}} \right) \equiv \sum_{i=1}^n w'_i \left(\frac{p_{2i}}{p_{1i}} \right).$$

The weights w_i in the Laspeyres index correspond to the actual expenditure shares for good or service i at reference point 1.⁹ The weights w'_i in the Paasche index correspond to the

⁸Within the modern Austrian literature, there are some arguments against the theoretical validity of the income effect, see Salin (1996) and Salerno (2018). But it is possible to reconstruct a meaningful notion of the income effect from the vantage point of Austrian price theory, which is after all the tradition in which Haberler himself was trained as an economist. See Israel (2018, 2020, 2022)

⁹Balk (2008, p. 7) refers to Fisher (1922, p. 60) and argues that the possibility to reformulate the index in such a way has the advantage that one does not actually have to know what the precise quantities of each commodity are that consumers buy in reference point 1. It is sufficient to know how much money is spent on each commodity in total. This however is misleading. One still has to know the unit prices, and if one knows the unit price and the overall expenditure on a commodity, one also knows the quantity bought, because it is not an independent variable. It immediately follows. There is actually no gain in terms of the

hypothetical expenditure shares where prices of reference point 1 are paired with quantities of reference point 2.

This notation provides another perspective on the two basic indices. By the law of demand we can understand why the Paasche index usually would provide a lower price inflation estimate than the Laspeyres index. Whenever the price ratio of a certain good i between the two reference points, i.e. p_{2i}/p_{1i} , is high, we would expect the quantity consumed of good i at reference point 2 (q_{2i}) to be lower than the corresponding quantity at reference point 1 (q_{1i}). Hence, we would expect the weight for that good in the Laspeyres index (w_i) to be bigger than the corresponding weight in the Paasche index (w'_i). In other words, it can easily be seen that the Paasche index tends to assign smaller weights to goods and services with relatively high price increases, because the law of demand tells us that the quantity demanded is lower the higher the price.¹⁰ The Paasche index will thus typically lead to a lower inflation estimate.

Hence, a potential problem that becomes apparent here is that prices and quantities are not independent variables. Basic price theory tells us that they are interdependent. In fact, the market price of a good is determined by consumer demand, that is, the quantities demanded. As consumer demand for a certain good increases, its price tends to increase. As consumer demand for a certain good decreases, its price tends to decrease. Prices and quantities, and hence expenditure shares for all goods and services are determined simultaneously on markets. It therefore seems problematic to make the *factor reversal rule* a formal requirement for a suitable index as if changes in the expenditure could be cleanly separated into one part that is due to price changes and another that is due to quantity changes. Price and quantity changes are not independent factors and they cannot be cleanly separated from one another.

It is true that an unchanged relative demand for goods and services is implied by assumptions 1 to 3. However, the same problem arises on the supply side. What causes a

information required to accurately calculate the index in practice.

¹⁰Again, this is strictly true only if we abstract from income effects.

reduction in price from the consumers' point of view? It is an increase in supply, that is, sellers are ready to offer larger quantities at given prices. Now, it is widely understood that a weighted average of any variable should ideally be constructed on the basis of weights that are themselves independent of that variable. If weights are dependent on the variable, potential biases are introduced, as the weights could inadvertently amplify or diminish certain values based on their magnitude. This illustrates another fundamental limitation of index number theory (Balk, 2008, pp. 28ff.).

We have thus seen that even with all assumptions met, price inflation measurement cannot deliver an objectively correct result. In the real world, of course, the assumptions made are almost never met completely. Thus many additional problems come into play. These practical problems are not merely statistical inconveniences. They determine the degree of discretion involved in inflation measurement and therefore the extent to which inflation can serve as a credible guide for economic policy. The following section examines these problems in detail.

3 Practical Problems of Inflation Measurement

In practice, preferences, needs, the degree to which they are satisfied and the various relevant side conditions under which economic agents make decisions change over time and between places. There is no way of measuring objectively how these aspects influence an individual's standard of living. It is therefore impossible to correct for these fluctuations scientifically.

Moreover, it is generally not the case that all goods and services are available at all the different places and different points in time considered. New goods and services regularly enter markets and existing goods and services disappear or change in quality. Sometimes regulations hamper free exchange and render buying decisions of consumers an outgrowth of political force rather than individual preferences. Few households consume their entire income. Most households save, even if only a modest fraction of their income. Hence, not

only consumption matters for the overall standard of living, but saving and wealth formation, too. The practical importance of these issues extends well beyond statistical accuracy. Because inflation indices guide monetary policy and numerous government decisions, every methodological choice introduces an element of discretion into the policy process. The following discussion illustrates how these discretionary choices arise in the construction of the HICP.

3.1 The Harmonized Index of Consumer Prices as a Policy Instrument

Despite the conceptual difficulties discussed in the previous section, modern monetary policy requires a quantitative measure of inflation. In the euro area, this role is fulfilled by the Harmonized Index of Consumer Prices (HICP), which constitutes the European Central Bank’s operational definition of price stability. Since the ECB formulates and evaluates its monetary policy in terms of the HICP, the index is far more than a descriptive statistical measure. It serves as the principal benchmark for one of the world’s most important economic policy institutions.

To ensure comparability across member states, the European Union has adopted a harmonized methodology with standardized definitions and procedures for calculating consumer price inflation (Nierhaus, 2006). Each member state compiles its own national HICP under the supervision of *Eurostat*, which verifies compliance with the common methodological framework. *Eurostat* subsequently aggregates the national indices into weighted averages for the euro area and other regional aggregates. Country weights are determined by the volume of private household consumption expenditures. Technically, the euro area HICP is constructed as a Laspeyres-type chain index with expenditure weights that are updated annually to reflect changes in observed household expenditure patterns. This design already reflects a compromise between theoretical consistency and practical feasibility, combining the conceptual simplicity of a fixed-base index with the practical necessity of accounting for

changes in consumer behavior over time.

The harmonized methodology greatly improves the international comparability of inflation statistics and provides a transparent institutional framework for monetary policy. It does not, however, eliminate the conceptual difficulties surrounding inflation measurement discussed above. On the contrary, the construction of the HICP necessarily embodies a series of methodological choices concerning the definition of consumption, the treatment of quality changes, the incorporation of new goods and services, and the updating of expenditure weights. Economic theory alone does not uniquely determine how these choices ought to be made. Rather, statistical agencies must exercise judgment in translating an inherently subjective and continuously changing economic reality into a single numerical indicator.

These judgments are often presented as purely technical matters of statistical methodology. Yet once the resulting index becomes the target of monetary policy, the underlying methodological choices acquire economic and political significance (Porter, 1995; Desrosières, 1998). Different approaches to inflation measurement may systematically favor different groups within society, alter the apparent success of monetary policy, and influence the scope for future policy interventions. The HICP therefore should not be viewed merely as a statistical instrument but also as an institutional arrangement that operationalizes a particular conception of price stability. The following subsections discuss several important areas in which such statistical discretion becomes unavoidable and creates opportunities for political influence and strategic behavior.

3.2 Measuring a Changing Economy

The primary purpose of inflation measurement is to track changes in the purchasing power of money over time. Yet the very phenomenon that makes such measurement desirable also renders it inherently problematic. Economic life is characterized by continuous change. Preferences evolve, technologies improve, new products emerge, existing products disappear, and production processes adapt to changing scarcities. A price index, by contrast, necessarily

attempts to compare different points in time as if the underlying economic environment remained sufficiently stable. The more dynamic an economy becomes, the more difficult such comparisons become.

One manifestation of this problem concerns substitution. Consumers continuously adjust their purchasing decisions in response to changing relative prices, incomes, and preferences. A household that substitutes chicken for beef or public transportation for private automobiles after relative prices change is not necessarily equally well off as before. Whether such substitutions should be interpreted as preserving the same standard of living or as reflecting a decline in purchasing power cannot be answered independently of the individual's own subjective evaluation. Consequently, statistical agencies must decide how frequently expenditure weights should be updated and to what extent observed substitutions should be incorporated into the index. Neither economic theory nor statistical methods uniquely determine the appropriate solution.

The problem becomes even more pronounced when entirely new goods and services enter the market. Many products that are today regarded as necessities—smartphones, internet services, or digital streaming platforms, for instance—did not exist only a few decades ago. Their introduction expands consumers' opportunity sets and often fundamentally alters consumption patterns. At the same time, existing products disappear or become obsolete. Since no historical prices exist for genuinely new goods, statistical agencies must determine when such products enter the basket, how they should be weighted, and how their introduction affects comparisons with previous periods. These decisions inevitably involve judgment rather than objective measurement.

A similar difficulty arises with quality changes. Products rarely remain identical over extended periods. Improvements in performance, durability, safety, or convenience alter the value consumers attach to them. Statistical offices therefore attempt to isolate the pure price component from changes in quality, often using hedonic adjustment techniques and other statistical procedures (Gordon, 2006; Triplett, 2006). While the harmonized application of

such methods improves consistency, it cannot eliminate the underlying conceptual problem. Assigning a monetary value to quality improvements or deteriorations ultimately requires assumptions about how consumers value different product characteristics. These valuations cannot be observed directly and therefore cannot be determined scientifically in an objective sense. As a consequence, different adjustment methods may yield different measures of inflation while remaining equally defensible from a statistical perspective. Similar observations have been made in the literature discussing substitution bias, quality adjustments, and the treatment of new goods in official consumer price indices (e.g. Boskin et al., 1996; Hoffmann, 1998; Feldstein, 2017; Israel and Schnabl, 2024).

Taken together, substitution effects, new products, and quality changes illustrate a common underlying problem. Inflation measurement seeks to compare purchasing power across different points in time, but the relevant objects of comparison continuously evolve. Statistical methods can mitigate some of these difficulties, yet they cannot eliminate the need for informed judgment. The resulting indices should therefore be understood not as objective measures of an independently existing magnitude but as carefully constructed approximations of an economic reality that is itself constantly changing.

3.3 Consumption versus Wealth

The conceptual difficulties discussed thus far concern the measurement of a changing consumption basket. An equally fundamental question, however, is whether consumption alone constitutes the appropriate object of inflation measurement. Most official consumer price indices, including the HICP, deliberately restrict their scope to current household consumption expenditures. Asset prices are excluded on the grounds that houses, stocks, bonds, and other financial or real assets constitute stores of wealth rather than objects of current consumption. Inflation is therefore defined as a decline in the purchasing power of money with respect to consumption goods and services alone.

This restriction reflects a simplifying assumption that Gottfried Haberler already identi-

fied. A cost-of-living index can only measure the purchasing power of money by abstracting from the intertemporal dimension of economic decision-making. Haberler therefore introduced the hypothetical figure of the “pure consumer,” an individual who neither accumulates wealth nor saves for future consumption. Only for such an individual can the standard of living be approximated solely by the prices of currently consumed goods. Real households, however, do not merely consume. They allocate income between present consumption and saving in order to finance future consumption under conditions of uncertainty. Purchasing power therefore concerns not only the command over current goods but also the ability to preserve future consumption possibilities.

This distinction can be illustrated formally. Consider a household whose lifetime utility depends on consumption over multiple periods,

$$U = \phi(c_0, c_1, \dots, c_T),$$

subject to the intertemporal budget constraint

$$\sum_{t=0}^T \frac{p_t c_t}{(1+r)^t} = W,$$

where p_t denotes the vector of prices prevailing in period t , r is the relevant discount rate, and W represents the household’s wealth. Maintaining a constant standard of living requires preserving the household’s intertemporal opportunity set, as summarized by the budget constraint. Yet an inflation index based solely on current consumption prices captures only a subset of the relevant price information. The purchasing power of wealth depends not only on current consumer prices but also on the prices of the assets through which future consumption opportunities are transferred across time.

This observation formed the basis of the insightful critique by Alchian and Klein (1973). They argued that a correct measure of inflation should not be restricted to current consumption goods but should instead reflect the cost of maintaining a constant stream of

utility over time. Since future consumption must be financed through the acquisition and holding of assets, changes in asset prices directly affect the purchasing power of wealth. In principle, therefore, a comprehensive cost-of-living index would have to account for the prices of all assets that provide claims on future consumption, including financial assets, real estate, and human capital. Their argument does not merely advocate adding house prices or other selected assets to existing consumer price indices. Rather, it questions the conceptual distinction between consumption prices and asset prices upon which modern inflation measurement is built.

Official statistical agencies generally reject this broader approach because assets are viewed primarily as investment objects whose prices reflect expected future returns rather than current consumption services. From the perspective of national accounting, this distinction is both practical and institutionally convenient. Yet it is ultimately grounded in convention rather than economic necessity. As emphasized by Goodhart (2001), the question of whether asset prices belong in measures of inflation ultimately depends on the underlying concept of purchasing power that monetary policy seeks to stabilize. Once households are recognized as agents making intertemporal choices between present and future consumption, the exclusion of asset prices no longer follows directly from economic theory. Instead, it represents one particular operational definition of purchasing power among several conceptually plausible alternatives.

This observation has important practical implications. If asset prices moved proportionately with consumer prices over time, excluding them from inflation measurement would make little difference. A growing literature, however, documents that consumer prices and asset prices frequently exhibit substantial and persistent divergences, particularly during periods of monetary expansion (Goodhart, 2001; Neumann and Greiber, 2004; Andersson, 2011; Claessens and Kose, 2017). Under such circumstances, an index restricted to current consumption may provide a systematically incomplete picture of changes in the purchasing power of money (Tödter and Ziebarth, 2020). Whether inflation should therefore be

understood primarily as a phenomenon affecting current consumption, lifetime consumption opportunities, or wealth more generally cannot be decided by statistical methodology alone. It depends ultimately on the underlying concept of purchasing power that the index is intended to capture.

3.4 Inflation Measurement and Statistical Discretion

The preceding discussion has examined several practical difficulties that arise in the construction of official inflation indices. These include changing consumption patterns, the emergence of new goods and services, quality adjustments, and the treatment of saving and wealth. Although these issues are often discussed separately in the statistical literature, they share a common characteristic. None admits a unique solution that can be derived from economic theory or statistical methodology alone. Every official measure of inflation necessarily reflects a sequence of methodological judgments regarding what should be measured, how it should be measured, and which aspects of economic reality should be regarded as relevant.

This observation should not be interpreted as a criticism of official statistical agencies. On the contrary, the production of an official inflation index inevitably requires precisely such judgments. In a dynamic economy characterized by subjective preferences, technological change, and heterogeneous patterns of consumption and saving, no purely mechanical procedure can translate the purchasing power of money into a single objective number. Statistical offices therefore perform an interpretative as well as a descriptive function.

As long as inflation indices serve merely descriptive purposes, this discretionary element has only limited practical significance. The situation changes fundamentally once a particular measure of inflation becomes the operational target of monetary policy and an important guide for fiscal policy, wage negotiations, pension adjustments, and numerous other economic decisions. Statistical discretion thereby acquires institutional significance. The measurement of inflation is transformed from a statistical exercise into an integral component of the economic policy framework. The following section examines the political economy implications

of this transformation.

4 The Political Economy of Inflation Targeting

The preceding sections have shown that inflation is not an objectively measurable magnitude. Even under highly restrictive theoretical assumptions, inflation measurement yields at best a range of plausible values rather than a unique result. In practice, additional complications arising from changing consumption patterns, quality adjustments, new goods, and wealth accumulation require statistical agencies to exercise considerable judgment in constructing official price indices. The resulting measures should therefore be understood as institutional approximations rather than purely objective descriptions of an independently existing economic reality.

These observations have important implications for the design of economic policy. Modern monetary frameworks increasingly rely on inflation targeting as a constitutional rule intended to constrain discretionary policy in the spirit of the constitutional political economy tradition (Buchanan and Tullock, 1962). Yet the effectiveness of any such rule depends crucially on the objectivity of the variable it targets. If the measurement of inflation itself involves discretionary judgments, then part of the discretion that inflation targeting seeks to eliminate is merely relocated from policymakers to the institutional process by which inflation is measured. This section examines the political economy implications of this institutional arrangement. It argues that once official inflation measures become policy targets, they inevitably create incentives to influence the definition, interpretation, and practical implementation of inflation measurement itself.

4.1 Inflation Targeting as Institutional Design

Inflation targeting emerged during the 1990s as an institutional response to the well-known time inconsistency problem of discretionary monetary policy (Kydland and Prescott, 1977;

Barro and Gordon, 1983). By committing monetary authorities to maintaining a publicly announced inflation objective, central banks sought to anchor inflation expectations, enhance policy credibility, and reduce the temptation to exploit short-run trade-offs between inflation and unemployment. Rather than relying on the discretion of policymakers, inflation targeting was intended to establish a transparent and predictable monetary framework in which policy decisions could be evaluated against an observable benchmark.

Such a framework, however, necessarily presupposes the existence of an operational measure of inflation. In practice, central banks therefore rely on officially produced consumer price indices. The European Central Bank defines price stability in terms of the HICP, while other inflation-targeting central banks employ comparable consumer price indices. The statistical construction of these indices is thus delegated to specialized statistical agencies, whose measurements provide the quantitative benchmark against which monetary policy is formulated and evaluated. Inflation targeting consequently transforms an official statistical measure into a central component of the monetary constitution.

Inflation targeting is commonly presented as a rule intended to reduce discretionary policymaking. Yet such a rule can constrain discretion only if the variable to which it refers is itself sufficiently objective and independently observable. If inflation measurement necessarily involves methodological judgment, then the institutional framework does not eliminate discretion altogether. Rather, it relocates part of that discretion from monetary policymakers to the process by which official inflation statistics are constructed.

This observation should not be interpreted as questioning the desirability of rule-based monetary policy. On the contrary, the constitutional arguments for constraining discretionary monetary policy remain compelling. The present argument merely suggests that the effectiveness of any rule ultimately depends not only on the conduct of policymakers but also on the institutional process through which the targeted variable is defined and measured. Statistical methodology therefore becomes an integral part of monetary governance rather than a purely technical activity carried out independently of policy.

Recent contributions within the central banking literature point toward a related concern. The experience of the Great Moderation and the Global Financial Crisis has led many economists to question whether exclusive reliance on consumer price inflation provides a sufficiently comprehensive guide for monetary policy. In particular, Borio et al. (2023) argue that monetary authorities should pay greater attention to financial cycles and the interaction between consumer price inflation, credit expansion, and asset prices. The present paper advances a complementary argument. Before asking whether additional indicators should supplement consumer price inflation, one must first ask whether the inflation measure that already serves as the policy target can itself be regarded as an objective benchmark. Once this question is answered in the negative, the central issue is no longer whether inflation should be targeted, but whether a monetary rule can effectively constrain discretion when the measurement of its target necessarily involves discretionary judgment.

4.2 Measurement and Political Incentives

A useful point of departure for understanding the political economy implications of inflation targeting is Goodhart’s Law (Goodhart, 1975, 1984).¹¹ Originally formulated in the context of monetary policy, it states that once a statistical indicator becomes the target of policy, it ceases to function as a reliable indicator because the behavior of policymakers and private actors adapts to the measure itself. More generally, the institutional importance attached to a statistical measure creates incentives to influence the processes by which it is produced, interpreted, and evaluated. Goodhart’s Law is therefore commonly understood as a consequence of strategic behavior once a statistical indicator acquires policy relevance.

The case of inflation targeting, however, reveals an even more fundamental problem. The preceding sections have shown that inflation is not an objectively measurable magnitude in the same sense as a physical variable like the weight or length of an object. No uniquely

¹¹The expression “Goodhart’s Law” was coined only later. Goodhart’s original observation emerged from his analysis of monetary targeting in the United Kingdom during the 1970s and has subsequently been generalized to many other policy settings.

correct measure of price inflation exists that could settle methodological disputes once and for all. Instead, every official inflation index necessarily embodies a sequence of judgments concerning the definition of consumption, the treatment of quality changes, the incorporation of new goods and services, the updating of expenditure weights, and the distinction between consumption and wealth. Consequently, the political economy problem does not just arise because official statistics might be manipulated after a variable has been declared the target. It arises already because the object of measurement itself admits several conceptually defensible operational definitions. The need to choose among them inevitably precedes any strategic response to the inflation target.

From this perspective, Goodhart's Law acquires an even stronger interpretation. The law is usually understood as describing what happens after a measure becomes a policy target. In the case of inflation targeting, however, the institutional relevance of the target begins even earlier. Inflation is, from the outset, not simply difficult to measure because relevant information is dispersed or incomplete. The problem is more fundamental. Even if a statistical agency operated with the best of intentions and possessed perfect information concerning all prices, quantities, qualities, and expenditure patterns within the economy, no uniquely objective measure of inflation could be derived from these data alone. Constructing an inflation index necessarily requires prior judgments concerning the economic phenomenon to be measured and the methodological conventions by which it is to be represented. Statistical discretion therefore reflects not merely a Hayekian knowledge problem but the absence of a uniquely objective measure of changes in the purchasing power of money.

Hayek's celebrated critique of central planning emphasized that dispersed and tacit knowledge prevents any central authority from allocating resources efficiently (Hayek, 1945). Inflation measurement constitutes not merely an epistemic but an ontological problem. The challenge is not simply that the relevant information is unavailable or dispersed, but that the theoretical object itself admits several equally defensible, and equally flawed, operational definitions. No increase in computational power or statistical sophistication can eliminate

this indeterminacy. Methodological judgment therefore remains unavoidable even under conditions of perfect information, honesty, and transparency.

This observation shifts the constitutional problem from monetary policy to the design of the institutions that produce the target variable. Constitutional rules are intended precisely to constrain the exercise of discretionary political power rather than relying on the wisdom or benevolence of policymakers (Buchanan, 1987, 1990). Yet the effectiveness of any rule depends upon the objectivity of the variables to which it refers. When the target itself necessarily reflects methodological judgment, the scope for discretion is not abolished but relocated. The constitutional challenge is therefore no longer limited to the conduct of central banks. It also concerns the institutional procedures through which official inflation statistics are constructed, revised, and interpreted.

This conclusion does not imply or require that official inflation statistics are intentionally manipulated or that statistical agencies fail to perform their tasks professionally. On the contrary, the unavoidable exercise of judgment follows directly from the theoretical and practical limitations of inflation measurement. Precisely because these judgments cannot be eliminated, however, they become an object of political interest once official inflation measures determine monetary policy, influence fiscal decisions, and affect the distribution of income and wealth. The following subsections illustrate how these institutional incentives manifest themselves in practice through the exclusion of public goods and asset prices from the official concept of inflation.

4.3 Public Goods and the Fiscal Bias

Official consumer price indices are designed to measure changes in the prices of goods and services purchased by private households. By construction, they exclude the costs associated with the provision of public goods and services.¹² This exclusion appears natural from the perspective of a private consumption index, but is less obvious for a cost-of-living index. The

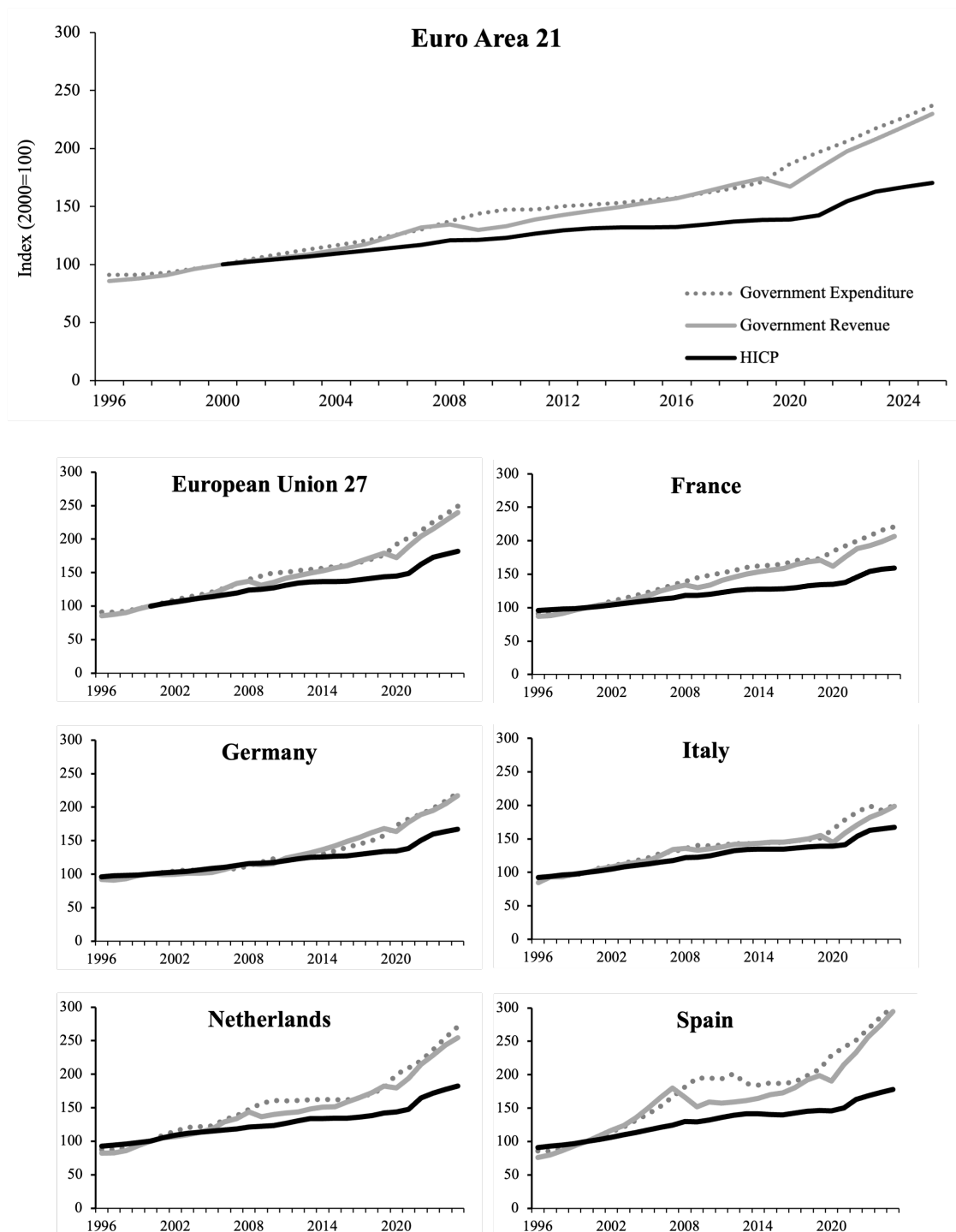
¹²We do not use the formal definition of public goods following Samuelson (1954) here, but we refer to all goods and services provided by the government whether or not they meet the standard definition.

goods and services provided by governments differ substantially from a private consumption basket. Yet they are ultimately also consumed by private households and their provision has to be financed by them. Public expenditure is concentrated in activities such as education, healthcare, public administration, policing, and the judicial system. Consequently, the prices most relevant for government finances need not evolve in parallel with the consumer prices targeted by monetary policy.

An important explanation for this divergence is provided by Baumol (1967) and his theory of unbalanced growth, commonly referred to as Baumol’s cost disease. Productivity improvements are concentrated primarily in technologically progressive industries, whereas many labor-intensive service activities experience only limited productivity growth. Nevertheless, wages in these sectors tend to rise alongside wages elsewhere in the economy because they compete for the same labor force. As a consequence, the unit costs of labor-intensive services increase persistently relative to manufactured goods. Since the provision of public goods relies heavily on precisely these activities, government expenditures are naturally subject to stronger price increases than the representative consumption basket underlying the HICP. This divergence is therefore not necessarily evidence of government inefficiency but follows from the economic structure of public production itself.

Figure 1 illustrates this pattern for the euro area (21), the European Union (27) and a selection of member states. Across all reported economies, government expenditures and revenues have increased substantially faster than the HICP since 2000. Although institutional differences, fiscal reforms, demographic developments, and tax policies all contribute to these patterns, the figure suggests that the prices relevant for the production and financing of public goods have systematically evolved differently from the consumer prices targeted by monetary policy. Following Israel and Schnabl (2024), the underlying assumption is that total government revenue or expenditure can be used as a proxy for the price of all government provided goods and services, abstracting from both expansion and quality changes in public goods production.

Figure 1: Government expenditure, government revenue, and the Harmonized Index of Consumer Prices (HICP), indexed to 2000 = 100, for the euro area and selected EU member states.



Source: Author's calculations based on *Eurostat*.

The systematic divergence between the evolution of government revenues and expenditures on the one hand and the HICP on the other has important political economy implications. Inflation targeting implicitly treats consumer price inflation as the relevant measure of the purchasing power of money for the economy as a whole. Yet governments themselves operate under a different price structure. If the costs of producing public goods rise persistently faster than the consumer prices included in the HICP, a monetary policy that successfully stabilizes measured consumer price inflation may nevertheless accommodate substantial increases in the nominal resources required by the public sector. At the same time, government revenues may expand more rapidly than consumer prices through nominal income growth, progressive taxation, and fiscal drag (Aaron, 1976; Musgrave and Musgrave, 1989; Feldstein, 1999). The official inflation target therefore provides a systematically weaker constraint on the fiscal expansion of the public sector than is commonly assumed (Brennan and Buchanan, 1980).

The omission of public goods from official inflation measures is therefore not merely a technical feature of index construction. The definition of the target determines which price changes constrain monetary policy and which do not. Inflation targeting consequently establishes an asymmetric framework in which the prices most relevant for public finances remain largely outside the indicator guiding monetary policy.

4.4 Wealth Formation and Asset Prices

The omission of asset prices from official inflation measures has an even deeper theoretical foundation than the exclusion of publicly provided goods and services. As discussed in Section 3.3, Haberler's analysis deliberately abstracts from wealth accumulation by assuming a pure consumer who spends all available income on current consumption. This simplifying assumption allows him to isolate the conceptual problems of measuring changes in the purchasing power of money for consumption purposes. Once households save and accumulate wealth, however, the distinction between consumption and investment becomes unavoidable.

Inflation then affects not only the purchasing power of current income but also the purchasing power of accumulated savings. Official consumer price indices inherit this limitation. By focusing exclusively on current consumption, they deliberately abstract from one of the principal functions of money, namely its role as a store of value.

This omission has long been recognized in the literature. In their influential contribution, Alchian and Klein (1973) argued that a cost-of-living index should account not only for current consumption goods but also for durable assets that provide future consumption services. Since households derive utility not merely from present consumption but also from future consumption opportunities made possible through saving and wealth accumulation, excluding asset prices provides an incomplete picture of changes in the purchasing power of money. The conventional focus on consumer prices therefore reflects a particular conceptual interpretation of inflation rather than a theoretically uncontroversial definition.

The practical importance of this omission has increased considerably under modern monetary policy. Even when consumer price inflation remains close to the official target, expansionary monetary conditions may generate substantial increases in asset prices. This possibility has been widely discussed in the literature on financial cycles and monetary policy, where consumer price inflation and asset price inflation frequently exhibit persistent divergences (Borio et al., 2023; Goodhart, 2001; Claessens and Kose, 2017). Similar patterns have been documented empirically for a number of advanced economies, where asset prices have increased considerably faster than consumer prices over extended periods (Israel and Schnabl, 2024). These observations suggest that official inflation measures may substantially understate the effects of monetary expansion on household wealth and intertemporal purchasing power.

One important mechanism underlying this divergence is the change in saving behavior induced by persistent monetary expansion. As the purchasing power of money gradually erodes and returns on nominal assets remain comparatively low, households have increasing incentives to shift their savings toward real assets such as real estate, equities, or precious

metals. This portfolio adjustment increases demand for existing assets whose supply is often relatively inelastic, thereby generating disproportionate increases in their prices. The resulting asset price inflation is therefore not simply another manifestation of consumer price inflation but reflects a structural reallocation of wealth induced by the inflationary environment itself. Similar arguments have recently been advanced in studies emphasizing the interaction between monetary expansion, household portfolio choice, and relative price changes (Israel and Schnabl, 2024).

The political economy implications are substantial. As long as monetary policy is evaluated exclusively against the evolution of consumer prices, central banks may appear to achieve price stability even while monetary expansion systematically alters wealth accumulation, portfolio decisions, and the distribution of capital gains. Inflation targeting therefore directs political and public attention toward only one particular manifestation of inflation while leaving another economically important transmission channel largely outside the official policy framework. This institutional asymmetry creates incentives to maintain accommodative monetary policies even when their effects become increasingly visible in asset markets rather than consumer goods markets.

The exclusion of asset prices from the operational definition of inflation therefore has consequences extending well beyond statistical methodology. By determining which effects of monetary expansion become visible to policymakers and which remain outside the inflation target, it shapes both the conduct of monetary policy and the public perception of its economic consequences.

4.5 Inflation Targeting and the Limits of Monetary Expansion

The political economy implications discussed above become particularly transparent when viewed through the lens of Modern Monetary Theory (MMT). One of the central propositions of MMT is that sovereign governments issuing their own fiat currencies are not primarily constrained by budget deficits or public debt but by inflation (Kelton, 2020). As long as

inflation remains contained, governments can continue to finance expenditures through monetary expansion. Inflation thus becomes the ultimate limiting factor of fiscal and monetary policy.

Once inflationary pressures emerge, governments are expected to restore price stability through discretionary fiscal adjustments, including tax increases or expenditure reductions, thereby withdrawing purchasing power from the economy (Wray, 2015). The effectiveness of this framework depends crucially on the existence of an operational inflation measure that provides a sufficiently reliable guide for such policy interventions. Yet, as pointed out before, different operational definitions systematically emphasize different dimensions of economic reality.

Even if governments were willing to implement timely and politically costly fiscal adjustments—an assumption already challenged by the well-known recognition, decision, and implementation lags of stabilization policy (Friedman, 1961)—the point at which intervention becomes necessary and the appropriate magnitude of the policy response would still depend on the particular inflation measure employed. Any monetary or fiscal regime that relies on inflation as its operational target therefore necessarily delegates part of its effective constraint to the statistical institutions responsible for defining and measuring inflation. The resulting institutional framework determines which consequences of monetary expansion become policy-relevant and which remain largely outside the scope of macroeconomic stabilization.

These omissions may also influence the long-run allocation of resources. Persistent monetary expansion accompanied by relatively stable consumer price inflation encourages households to shift savings away from nominal assets toward existing real assets whose prices rise more rapidly. As expected capital gains become increasingly attractive relative to returns from productive investment, the composition of investment may gradually shift toward the acquisition of existing assets rather than the creation of new productive capital. Such changes in capital allocation are unlikely to be reflected adequately in consumer price indices, yet they may have important consequences for productivity growth, real wages, and long-run

economic development.

Viewed from this perspective, MMT represents the limiting case of the political economy problem analyzed in this paper. The more inflation replaces conventional fiscal constraints as the principal limit on government expenditure, the greater becomes the importance of the institutional processes through which inflation itself is defined and measured. The political economy of inflation targeting is therefore ultimately inseparable from the political economy of inflation measurement.

5 Conclusion

This paper has argued that inflation measurement is subject to fundamental theoretical and practical limitations that cannot be eliminated through improved statistical methods. Building on Haberler's early work on index number theory, it has shown that no uniquely objective measure of changes in the purchasing power of money exists, even under highly restrictive assumptions. In practice, the construction of official inflation indices necessarily requires methodological judgments concerning substitutions, quality changes, new goods, wealth accumulation, and the scope of consumption. Inflation measurement is therefore unavoidably an institutional rather than a purely technical undertaking.

These observations have important implications for the political economy of inflation targeting. Once an official price index becomes the operational target of monetary policy, the methodological choices embodied in that index acquire institutional significance, in the sense that they subsequently constrain monetary policy choices. Rather than eliminating discretion, inflation targeting partly relocates it to the institutions responsible for defining and measuring inflation. The resulting framework creates systematic incentives that may favor particular fiscal arrangements, neglect changes in asset prices and wealth accumulation, and obscure important long-run consequences of monetary expansion, such as expanding government shares.

The purpose of this paper has not been to propose a superior measure of inflation or to reject the use of price indices altogether. Rather, it has sought to demonstrate that inflation should be understood as an inherently imperfect approximation whose institutional role deserves greater scrutiny than it has received in the existing literature. Future research should therefore devote greater attention to the constitutional design of inflation measurement itself and to the interaction between statistical methodology, monetary institutions, and political incentives.

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